

Calculating Indirect Emissions Based on Throughput

Source	2000			2001		
	POC	NO _x	SO ₂	POC	NO _x	SO ₂
Ballast Emissions	3.4	---	---	7.26	---	---
Vapor Control Equipment	2.64	---	---	1.45	---	---
Fugitive Emissions	1.6	---	---	1.6	---	---
Tank Standing Losses	1.04	---	---	1.43	---	---
Tank Withdrawal Losses	2.11	---	---	1.57	---	---
Total Non-Loading Emissions	10.79	---	---	13.31	---	---
Cargo Loading Emissions	19.76	---	---	0.57	---	---
Indirect Emissions						
Tanker Pumping Emissions	2.06	11.3	21.09	1.39	9.75	9.59
Tanker Transit Emissions	1.49	17.24	11.49	2.82	32.09	15.58
Tanker Hoteling Emissions	0.22	2.35	0.7	0.29	3.06	0.96
Tug Combustion Emissions	0.72	31.61	3.93	0.64	28.37	3.53
Total Indirect Emissions (tons/year)	4.49	62.5	37.21	5.14	73.27	29.66

Marine Terminal	2000	2001
Total Product Received	24.327	18.199
Total Product Shipped	3.991	3.122
Total Product In/Out, mil bbls/year	28.318	21.321

Emissions (tons/million barrels)

Source	2000			2001		
	POC	NO _x	SO ₂	POC	NO _x	SO ₂
Ballast Emissions	0.12006			0.34051		
Vapor Control Equipment	0.09323			0.06801		
Fugitive Emissions	0.0565			0.07504		
Tank Standing Losses	0.03673			0.06707		
Tank Withdrawal Losses	0.07451			0.07364		
Cargo Loading Emissions	0.69779			0.02673		
Operations Emissions (tons/mil barrels)	1.07882			0.651		
Indirect Emissions						
Tanker Pumping Emissions	0.07275	0.39904	0.74476	0.06519	0.4573	0.44979
Tanker Transit Emissions	0.05262	0.6088	0.40575	0.13226	1.50509	0.73073
Tanker Hoteling Emissions	0.00777	0.08299	0.02472	0.0136	0.14352	0.04503
Tug Combustion Emissions	0.02543	1.11625	0.13878	0.03002	1.33061	0.16556
Indirect Emissions (tons/mil barrels)	0.15856	2.20708	1.31401	0.24108	3.43652	1.39112

Total allowable throughput to maintain Indirect Emissions <15 tons/year, mil bbls	94.6036	6.79632	11.4155	62.2208	4.36488	10.7827
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Limiting Factor is NO_x

Assume Average NO_x (tons/mil barrels) = 2.8218

Total allowable throughput to maintain Indirect Emissions <15 tons/year, mil bbls	5.31576
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